

CLAIMS:

1. A method of forming a compressed wood product comprising the steps of:

5 subjecting a piece or pieces of softwood, with a moisture content of approximately 30-40% (w/w) to a first heating compression step in which the density of the softwood is increased to a first predetermined level and the moisture content is reduced to between approximately 3-8% (w/w),

10 releasing said wood from said first compression step, coating and impregnating said compressed wood with a fatty acid,

subjecting said impregnated compressed wood to a second heating compression step in which the density of said compressed wood is increased to a second predetermined level and the 15 moisture content is further reduced and in which said fatty acid is further impregnated into said compressed wood, and

releasing said wood from said second compression step and allowing said impregnated compressed wood to anneal while cooling to ambient temperature.

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2. A method of forming a compressed wood product comprising the steps of:

subjecting a piece or pieces of diffuse porous hardwood, with a moisture content of approximately 40-50% (w/w) to a first heating compression step in which the density of the 25 hardwood is increased to a first predetermined level and the moisture content is reduced to approximately 4-8% (w/w),

releasing wood from said first compression step and coating and impregnating said compressing wood with a fatty acid,

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optionally, when said wood is hardwood, subjecting said impregnating compressed wood to a second heated compression step in which the density of said compressed wood is increased to a second predetermined level and the moisture content is reduced to suit end product requirements, at as low as 2-4% (w/w) and in which said fatty acid is further impregnated into 35 said compressed wood, and

releasing said wood from said second compression step and allowing said impregnated compressed wood to anneal while cooling to ambient temperature.

3. The method as claimed in claim 1, wherein said softwood is subjected to a preliminary drying step prior to said first compression step.
4. The method as claimed in claim 2, wherein said hardwood is subjected to a preliminary drying step prior to said first compression step.
5. The method as claimed in either claim 3 or 4 wherein said preliminary drying step is a pressure drying step.
- 10 6. A method as claimed in any one of the preceding claims, wherein said first compression step is maintained for a time period of up to three minutes.
- 15 7. A method as claimed in any one of the preceding claims, wherein said first compression step is conducted at a pressure of from 50 to 114 kg/cm² according to wood species.
8. A method as claimed in any one of the preceding claims, wherein the temperature of said first compression step is within the range of 140°C to 185°C.
- 20 9. A method as claimed in claim 1 or 3 wherein said softwood is subjected to heat at a temperature up to 200°C prior to said first compression step.
10. A method as claimed in claim 9 wherein said heat is steam heat.
- 25 11. A method as claimed in any one of the preceding claims, wherein said compressed wood is impregnated by passing it through a heated bath only, or in combination in vacuum pressure chamber.
12. A method as claimed in claim 11, wherein said bath or pressure tank is heated to a 30 temperature of from about 60°C to 120°C.
13. A method as claimed in any one of the preceding claims, wherein said fatty acid is in a non-aqueous carrier.
- 35 14. A method as claimed in claim 13, wherein said non-aqueous carrier is paraffin.
15. A method as claimed in any one of the preceding claims, wherein said fatty acid is stearic acid.

16. A method as claimed in any one of claims 1 to 14, wherein said fatty acid is palmitic acid.

5 17. A method as claimed in any one of claims 1 to 14, wherein the fatty acid is a mixture of palmitic stearic acid.

18. A method as claimed in any one of the preceding claims, wherein said second compression step is conducted at a temperature between 60°C and 140°C.

10 19. A method as claimed in any one of the preceding claims, wherein said second compression step is conducted for from 3 to 6 minutes.

15 20. A method as claimed in any one of the preceding claims, wherein said annealing is assisted by subjecting said compressed wood from said second heated compression step to radiation.

21. A method as claimed in claim 20, wherein said radiation is infrared radiation.

22. A method as claimed in claim 20, wherein said radiation is microwave radiation.

20 23. A method as claimed in claim 20, wherein said radiation is gamma radiation.

24. A method as claimed in any one of the preceding claims, which includes the preliminary step of cutting a log into pieces.

25 25. A method as claimed in claim 24, wherein said pieces are flitches.

26. A method as claimed in claim 25, wherein said flitches are sliced.

30 27. A method as claimed in claim 25 or 26, wherein said flitches are subjected to infrared radiation prior to being sliced.

28. A method as claimed in any one of claims 1 to 12, including a preliminary step in which a log is cut into side slab wood with predetermined thickness which establish flitch size parameters.

35 29. A method as claimed in any one of claims 24 to 27, wherein said log is diffuse porous hardwood said pieces into which it is cut are stored for up to four weeks prior to further treatment.

30. A method as claimed in claim 28, wherein said log is diffuse porous hardwood and said slabs cut therefrom are stored for up to four weeks prior to further treatment.
- 5 31. A method as claimed in any one of the preceding claims wherein said wood is subjected to a preliminary step of immersion in hot water or superheated steam.
- 10 32. A method as claimed in any one of claims 1 to 30, wherein said wood is subjected to a preliminary drying step to reduce its moisture content prior to steam heating and before said first compression step.
33. A method as claimed in claim 32, wherein said drying step is reduced pressure drying.
- 15 34. A method as claimed in any one of the preceding claims, wherein said compressed wood product after annealing is subjected to a further drying step.
35. A method as claimed in claim 34, wherein said further drying step is followed by a supplementary packet assembling compression step.
- 20 36. A method as claimed in claim 35, wherein said assembling compression step is done at ambient temperature.
37. A method as claimed in claim 35 or 36, wherein said compressed wood from the said assembling compression step is subjected to further processing.
- 25 38. A method as claimed in claim 37, wherein said further processing including laminating compressed pieces of the modified wood together, or with other wood fibre panels.